

Air Quality – Earth Observation Internship

Code: 23/30

Company: GlobalTrust Ltd

Location: GlobalTrust, The Bull Pens, Manor Farm, Alresford Rd, Itchen Stoke, Alresford, SO24 0Q

Company Description:

GlobalTrust is an innovative environmental sustainability start-up located near Winchester, it is part of the Swedish Space Corporation group. GlobalTrust uses the latest analytics with data gathered from satellite images and other geospatial datasets to provide valuable insights about corporate, investment, and government activities around the globe.

GlobalTrust provides independent and trusted information on Environmental, Social, and Governance (ESG) metrics across numerous industries. By providing organisations, and their associated supply chains, with ESG intelligence we encourage them to make socio-environmentally assessed decisions. These data offer organisations a chance to implement responsible strategies into the core of their activities while continuing to be profitable. For example, through the efficient allocation of resources, compliance with government regulations, and improved trust with their various stakeholders.

While corporate transparency is increasingly being demanded by stakeholders, there remains a general lack of confidence in corporate activities which is often linked to self-reporting. As a reliable and independent source of data, GlobalTrust provides bespoke solutions for its clients with a focus on generating trust through responsible business initiatives and ethical investment products.

Satellites allow us to generate insights over locations that are difficult to access, multiple areas simultaneously, and across various timeframes. By using smart analytics with satellite-derived multi-spectral, hyper-spectral and radar datasets, we are able to address today's largest global challenges. GlobalTrust is making geospatial data available in a new way that is crucial for most future sustainability efforts.

Project Description:

The applicant will be taking published methods of identifying key pollutants, such as NO₂, CH₄, SO₂, and applying them to a combination of medium spatial resolution open access datasets, and high-resolution Worldview imagery. The end goal is to test the methods developed in a variety of geographies and datasets, and to develop repeatable workflows usable in ongoing projects.

Key activities will include:

- Understanding the literature of the subject area. The project is a technology-driven activity; however, it is critical to understand real-world applications of these data and capture the environmental and social challenges that can be supported with a better understanding of gases and pollutants in the atmosphere. The intern will develop in-depth knowledge of applications of these applications.
- Developing an understanding of the remote sensing techniques used. The intern will work together with GlobalTrust's Earth Observation Specialists putting into practice different scientific techniques to monitor different atmospheric parameters.
- Utilising various open-source and commercial tools to map these features. The way to present insights extracted from Earth Observation is vital in the process of engaging with clients. The intern will experiment with tools to present this information in various formats to engage with different profiles of users/clients.
- Developing the product pipeline, potentially incorporating elements of automation. There is an ever-increasing need to optimise the processes to use large volumes of Earth observation. The intern will be supporting the improvement of efficiencies of the gas and pollutants monitoring solutions.

Applicant Specification:

The applicant will develop their understanding of various types of satellite data, including the importance and applicability of features within it to various EO applications, such as number of bands, width of bands, wavelengths covered, different sensors designs etc.

They will gain an understanding of environmental challenges, and the needs of GlobalTrust's client base for greater information and intelligence around these challenges. Part of this exercise will help to improve their skills to translate user requirements into technical requirements for future developments via efficient communications. Being able to navigate between the commercial and technical teams will be a valuable skill to increase their future job career opportunities.

A variety of techniques around spectral remote sensing will be covered, including the use of machine learning, for the identification of features in imagery. The applicant will also produce a report on their results from the duration of the project, and aid in the generation of marketing material.

The intern will also be improving their documentation skills via the creation of a document that documents their technical development steps, as the information captured as desk-research information and technical outcomes will have to be recorded. This documentation will be discussed with the business development and technical team to align with the clients' requirements.

Above all, they will develop an understanding of working as part of a team in a fast-moving technical industry, and attempting to use the vast amount of available data to tell us the most about the world around us.

Academic:

Suitable backgrounds could include: Physics, Geography, Earth Science, Environmental Science, or Chemistry (or similar disciplines).

Minimum requirements:

- Team player
- Research experience
- Interested in remote sensing/earth monitoring technologies, the natural environment

Preferred Additional Requirements:

- Experience working with Earth Observation data
- Python programming skills
- Understanding of machine learning

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate. In-person/hybrid Induction Event to be held on 19 June 2023, and an in-person/hybrid Showcase Event to be held at the 2023 UK Space Conference in Belfast between 21 November to 23 November. Ideally to complete before the start of the next academic year. Salary is £1,875 per calendar month gross.

Closing Date for Applications: 12pm on Wednesday 19 April

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.

[Link to the online form](#)

(scroll to the bottom of the page)

Code: 23/30